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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,403	02/09/2004	Junya Maruyama	12732-040002	6601
26171 7590 04/17/2007 FISH & RICHARDSON P.C. P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			EXAMINER LIN, JAMES	
			ART UNIT 1762	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	DELIVERY MODE
3 MONTHS			04/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/773,403

Applicant(s)

MARUYAMA ET AL.

Examiner

Jimmy Lin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 31-33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no support for removing the “insulating” limitation from the first and third films (claim 31). The embodiment of Example 5 and Figs. 7A-7C only mention the first and third films as being insulating. There is no evidence that the Applicant had possession and had presented written disclosure fairly indicating that the Applicant intended to claim the genus of all possible materials used as the first and third films.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 19-20 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/24271 (references made are to the English equivalent U.S. Patent No. 6,821,553, hereafter Miyashita) in view of Wolk et al. (U.S. Patent No. 6,194,119) and Ura et al. (U.S. Patent No. 6,054,392).

Miyashita discloses a method of making an electroluminescent (EL) device, comprising:
forming a thin film transistor (TFT) over a substrate (col. 2, lines 55-58);
forming a first electrode over TFT, wherein the first electrode is electrically connected to the TFT (col. 15, lines 1-12);
forming a second insulating film 805 over an edge portion of the first electrode 801;
forming a luminescent layer 806 on the first electrode, wherein the luminescent layer can be a polymer (col. 7, lines 1-7);
forming a electron transport layer 811 on the polymer luminescent layer, wherein the electron transport layer can be a low molecular weight material such as aluminum quinolynol (col. 13, lines 2-4);
forming a second electrode 813 on the low molecular weight electron transport layer (Fig. 4).

Miyashita does not explicitly teach that the luminescent polymer film is formed over the second insulating film. The second insulating film of Miyashita is a partitioning wall formed to separate the luminescent films. Wolk teaches that a luminescent film 506 can be deposited onto the partitioning wall 504 (Fig. 5B). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed the luminescent polymer film of Miyashita over the second insulating film with a reasonable expectation of success because Wolk teaches that such EL configurations are operable.

Miyashita does not explicitly teach forming a first insulating film over the TFT and performing a first plasma treatment on the first insulating film after forming the first insulating film. However, Miyashita does teach that the formation of a TFT on the EL substrate prior to the formation of the first electrode. Ura teaches that it is well known to form an interlayer insulating

film (i.e., a first insulating film) between the TFT and the first electrode. Contact holes are dry-etched into the insulating film so as to obtain a contact between the TFT and the first electrode. After the etching process, a plasma treatment is performed to remove the damaged layer of the interlayer insulating film (col. 1, line 51-col. 2, line 6). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed a first insulating film before forming the first electrode of Miyashita and to have performed a first plasma treatment on the first insulating film with a reasonable expectation of success because Ura teaches that it is well known to form an insulating layer over the TFT and because Ura teaches that a plasma treatment is necessary to remove damaged portions of the insulating layer.

Miyashita does not explicitly teach that a second plasma treatment is performed on the second insulating film. However, Miyashita does teach that the second insulating film can be a photosensitive polyimide (col. 4, lines 59-64) without limiting the method of forming the pattern to any particular process. Ura teaches that dry etching is an operable method of forming patterns of photoresist (i.e., photosensitive) films. The photosensitive polyimide of Miyashita would then be plasma treated to remove the damaged layers (col. 1, line 66-col. 2, line 6). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have patterned the photosensitive film (i.e., the second insulating film) of Miyashita using a dry etching process and to have plasma treated the film with a reasonable expectation of success because Ura teaches that dry etching is an operable method for patterning a photoresist layer and because Ura teaches that removing the damaged layer via plasma treatment is desirable. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Claim 22: Miyashita and Ura do not explicitly teach that the first and second plasma treatment hardens the upper surfaces of the first and second insulating films. However, Ura does suggest the use of first and second plasma treatments, which must necessarily harden the insulating layer films. In addition, the removal of the damaged layer can be interpreted to be removing the softened layer to expose the harder underlying layer because the damaged layer has been exposed to the dry etching process and, thus, has a reduced integrity as compared to the underlying portion.

Claims 20,23: Miyashita teaches that the polymer film is a luminescent layer and the low molecular weight film is an electron transport layer, as discussed above.

6. Claims 21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '271 in view of Wolk '119 and Ura '392 as applied to claims 19 and 22 above, and further in view of Hu et al. (U.S. Patent No. 6,057,048).

Miyashita, Wolk, and Ura are discussed above but do not explicitly teach that the EL device is incorporated into a device required by claims 21 and 24. However, Hu teaches that it is well known to use EL devices for computers (col. 1, lines 18-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated the EL device of Miyashita in a computer because Hu teaches such applicabilities are well known. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

7. Claims 25-26 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '271 in view of Wolk '119 and Ura '392 as applied to claims 19 and 22 above, and further in view of Jones et al. (U.S. Patent No. 6,337,492).

Miyashita, Wolk, and Ura are discussed above but do not explicitly teach that a diamond-like carbon (DLC) film is formed over the second insulating film. However, Jones teaches that DLC films can be used to provide an insulative barrier between the light emitting elements (col. 4, lines 47-55). In Miyashita, the second insulating layers 805 act as an insulative barrier between the light emitting elements 806,807,808 (Fig. 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a DLC film in addition to the second insulating film of Miyashita with a reasonable expectation of success because Jones teaches that DLC films are operable for forming a barrier between the EL elements.

Miyashita and Jones do not suggest whether to form the second insulating film or the DLC film as the lower film. However, the selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results. See, for instance, *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946). One of ordinary skill in the art would have

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recognized that formation of either film as the first film would have yielded similar results. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed the second insulating layer first, as opposed to forming the DLC film first because either method would yield an operable equivalent structure.

8. Claims 27 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '271 in view of Wolk '119, Ura '392, and Jones '492 as applied to claims 25 and 28 above, and further in view of Hu '048 for substantially the same reasons as discussed for claims 21 and 24.

9. Claims 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '271 in view of Wolk '119, Ura '392, and Jones '492 as applied to claims 25 and 28 above, and further in view of JP 10-268360 (references made are to the English equivalent U.S. Patent No. 6,115,090, hereafter Yamazaki). Eida et al. (U.S. Patent No. 5,909,081) is cited herein as evidence of inherency.

Miyashita, Wolk, Ura, and Jones are discussed above, but do not explicitly teach that a DLC film is formed over the first insulating film. However, Yamazaki teaches that a DLC film 125 can be formed over an interlayer insulating film 123 on a pixel TFT. The DLC film effectively releases heat generated by TFTs (abstract; col. 2, lines 13-17; Fig. 1). Eida teaches that heat inherently has negative effects on EL materials, especially organic low molecular weight compounds (col. 1, lines 50-58). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed a DLC film on the first insulating film of Miyashita and Ura. One would have been motivated to do so in order to have reduced the exposure of heat to the low molecular weight film of Miyashita.

10. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '271 in view of Wolk '119, Ura '392, Jones '492, and Yamazaki '360 as applied to claim 31, and further in view of Hu '048 for substantially the same reasons as discussed for claims 21 and 24.

Response to Arguments

11. Applicant's arguments, see pgs. 7-8, filed 2/27/2007, with respect to claims 19-31 have been fully considered and are persuasive. The 35 U.S.C. 112, first paragraph and second paragraph rejections of the claims have been withdrawn.

12. Applicant's arguments with respect to claims 19-33 as rejected over Yamazaki '887 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is 571-272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JL

JL


KEITH HENDRICKS
PRIMARY EXAMINER